



Memorandum

To: Dania Zinner (EPA, Region 8)

From: Lynn Woodbury, Teddy Marcum

Date: August 7, 2013

Subject: OU6 Adequacy of Data for Risk Assessment and Site Characterization

INTRODUCTION AND PURPOSE

Operable Unit 6 (OU6) of the Libby Asbestos Superfund Site encompasses Burlington Northern Santa Fe (BNSF) owned property that may have been impacted by the loading and hauling of asbestos-contaminated vermiculite or processed Zonolite shipped on the BNSF line through approximately 1990, the date of the mine closure. OU6 is roughly centered on Libby, Montana (Mile Post [MP] 1319.5) and extends east to approximately MP 1301 and west to approximately MP 1341. Potential human health hazards at OU6 consist of the disturbance of previously-deposited asbestos fibers during rail maintenance activities or during recreational activities, such as hiking along the railroad tracks.

Per your request, CDM Smith (formerly CDM) has evaluated the data collected for OU6 to determine if data are adequate for human health risk assessment purposes and if data are adequate to characterize the nature and extent of asbestos contamination in OU6. This evaluation included assessment of data representativeness, quality, and comparability.

DATASET SUMMARY AND EVALUATION

Several investigations have taken place at OU6 to evaluate potential exposure to asbestos for workers and the general public during railroad maintenance activities. Activity-based sampling (ABS) air, ambient air, surface soil, and spoil samples have been collected. Sampling locations were primarily determined by the locations of the planned rail maintenance activities. The majority of the maintenance activities involved track replacement, which involved a Steel Gang to remove and replace the rail and a Surface Gang to tamper the ballast and regulate the track. Gangs or specialized teams of BNSF personnel varied in number for each maintenance activity and a subset of these workers representing the various types of maintenance activities participated in air monitoring. CDM Smith provided field oversight on behalf of the U.S. Environmental Protection Agency (EPA) for the ABS sampling event conducted in July 2008, which consisted of the scheduled maintenance at the Jay Effar Road and Cedar Creek railroad crossings.

A brief description of the available data and the assessment of the data adequacy for the purposes of supporting risk assessment are presented below organized temporally by sampling event.

2001 to 2005 LIBBY RAILYARD

Soil sampling was conducted from 2001 to 2005 to characterize asbestos contamination extent within the Libby Railyard. Based on the results of these investigations, eight zones were identified requiring further action. Actions included excavation and disposal of asbestos-contaminated soil at the asbestos cell of the Lincoln County landfill or capping asbestos contaminated soil in-place. Five zones were excavated, three zones were capped in-place. In excavation zones, a geotextile membrane was placed on top of the final excavation and then backfilled with clean soil. In capped zones, a geotextile liner was installed and then covered with clean fill.

Based on the summary of the investigations conducted from 2001 to 2005 at the Libby railyard (as provided by BNSF (EMR Inc. 2011)), asbestos impacted soils within the railyard have removed or capped. Confirmation samples have shown that asbestos levels in soil are non-detect by polarized light microscopy (PLM). Collection of additional soil data at this time is unwarranted.

JULY 2008, RAIL CROSSING AIR MONITORING

Personal air monitoring was conducted during the replacement of rail crossings at Jay Effar Road and Cedar Creek (EMR Inc. 2008). The work consisted of cutting the rail section spanning across the crossing, pulling the rail and ties out of the crossing, excavation of a limited quantity of track bed, removal and replacement of deteriorated ties, and re-connecting the rail section with bolt plates. The base of the excavation at both locations was inspected for visible vermiculite; no visible vermiculite was observed. Information from BNSF personnel indicated that both crossings had been completely restored within the last 10 years and vermiculite products were not anticipated below the ballast (CDM Smith 2008). Following replacement, fresh ballast was placed over the track bed, tamped, regulated and raised to the proper elevation.

Work at Jay Effar Road was completed on July 22, 2008. A water truck was utilized throughout the work activity for dust suppression. Personal air samples were collected from five BNSF personnel. Air samples were analyzed by phase contrast microscopy (PCM) in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 7400. Following PCM analysis, at the request of BNSF, select air samples were analyzed for transmission electron microscopy (TEM) by Asbestos Hazard Emergency Response Act (AHERA) counting and recording rules. Samples selected for analysis by TEM were those that showed "higher" fiber concentrations which appeared to be samples with fiber concentrations greater than 0.003 fibers per cubic centimeter (f/cc) by PCM or filters that were visibly loaded with particulates. No asbestos structures were detected in any of the TEM AHERA analyses.

The Cedar Creek Road crossing replacement was conducted on July 29, 2008. No water truck was available during site activities. Six personal air samples were collected from five BNSF personnel and analyzed by TEM using AHERA counting and recording rules. No asbestos structures were detected in any of the TEM AHERA analyses.

CDM Smith provided field oversight for these events on behalf of the EPA (CDM Smith 2008). Oversight of scheduled maintenance by BNSF at the Jay Effar Road was conducted on July 21 through July 23, 2008 and at the Cedar Creek railroad crossing on July 29th, 2008. The observer noted that samples were representative of each worker's full shift, and often included a multitude of tasks, work in several locations, and collection over periods of down time. Placement of the filter cassettes were within the breathing zone of personnel when practical, but were observed in the cab of the loader (instead of attached to the operator), as well as hanging off the shoulders of the ground crew during periods of strenuous activity. The observer noted: "Due to unstructured nature of the tasks performed during sample collection and other variations, these samples would be difficult to compare to other activity based air samples collected by CDM." However, comparison of this air monitoring program to other more structured ABS programs was not a study goal, and the collected data are considered representative of railroad maintenance worker routine activities.

SEPTEMBER 2008, BNSF ABS EVENT

Study Design

The 2008 ABS event was designed to evaluate potential exposure to asbestos for workers along the railway right-of-way (ROW) and the general public. Sampling was conducted from September 17 to 25, 2008, at seven different areas within OU6. Specific sampling locations differed each day, depending upon where planned rail maintenance activities were being conducted, and included locations at a distance of 7.5 to about 20 miles from Libby, Montana and less than 3 miles from Troy, Montana.

Data quality objectives (DQO) for the 2008 ABS event were detailed in the *Rail Maintenance Public Receptor Activity-Based Sampling and Analysis Plan* (SAP) (ENSR/AECOM, 2008). The SAP was developed in general accordance with the *EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5* (EPA 2001) and the *Guidance on Systematic Planning Using the Data Quality Objectives Process, EPA QA/G4* (EPA 2006). DQOs defined in the SAP are consistent with DQOs specified for other ABS investigations performed by EPA for the Libby Asbestos Superfund Site.

ABS air samples were collected for workers (14 samples), pedestrian trespassers (14 samples), and on-looker trespassers (7 samples). The worker scenario simulated two types of railroad workers: a laborer performing duties on the track as part of larger group of workers and a worker operating machinery with an open air cab. For the on-looker trespasser scenario, air samples were to represent potential exposures when railway maintenance activities were taking place. For the pedestrian trespasser scenario, air samples were to represent potential exposures when railway maintenance activities were not occurring. However, due to manpower limitations during the actual ABS, the pedestrian trespasser spent most of the sampling period in areas where maintenance activities were occurring; thus, the two trespasser scenarios (pedestrian and on-looker) were essentially the same.

A minimum of two stationary air samples were also collected from each side of the track undergoing maintenance activities at each ABS area resulting in a total of 22 stationary air samples. In addition to air samples, 62 discrete grab soil samples were collected.

Sampling Locations

Sampling areas were selected based on the planned work maintenance areas on the track for the day. Figure 3 of the *Activity Based Sampling Summary Report for Public Receptors* (EMR 2010a) presents the locations of the ABS sampling areas. Six of the areas (MP 1329.5, 1331, 1331.5, 1337, 1339.5, 1341) were west of Libby spanning the length of OU6 starting about 8 miles west of Libby and continuing for about 20 miles. Mile Posts are 10 miles (1329.5), 12 miles (1331), 12.5 miles (1331.5), 12.5 miles (1331.5) northwest of Libby. Three of these sampling areas were beyond Troy. Mile Post 1337.9 is 1 mile east of Troy and Mile Post 1339.5 is 1.5 miles west of Troy. One sampling area was about 7.5 miles southeast of Libby (Mile Post 1312). Figures 4 through 10 of the *Activity Based Sampling Summary Report for Public Receptors* (EMR 2010a) present the soil sampling locations and stationary air monitoring locations for each sampling event.

Soil Sample Collection Procedures, Analysis Methods, and Results

Rail lines are constructed on several inches of ballast material (crushed stone), which is not amenable to direct sampling for asbestos. Therefore, soil samples were collected from the soil surface nearest the track on which the work was occurring, from 40 to 320 feet apart, dependent on the work area and available exposed soil. Discrete grab soil samples were collected from one side or both sides of the track, depending on the track configuration and availability of exposed soil. The SAP specified that up to 15 discrete grab soil samples would be collected near rail maintenance activities, so that the entire ABS area was represented by the samples. Generally for other EPA investigations at the Libby Site, multi-point composite soil samples are collected; however, because the focus of this sampling event was the collection ABS samples, the difference in soil collection methods is not considered to be an important limitation of this study.

Samples were prepared for analysis by the Libby-specific polarized light microscopy (PLM) methods. The fine, ground soil fractions were analyzed by using SOP SRC-LIBBY-03 (PLM using visual area estimation [PLM-VE]). With the exception of two samples (RR-00022 and RR-00025), all fine, ground soil fractions were non-detect for Libby amphibole (LA), other amphibole (OA), and chrysotile (CH) asbestos. Samples RR-00022 and RR-00025 were reported as containing trace levels of LA (Bin B1). Both samples were collected within the limits of the Kootenai Falls siding at BNSF MP 1331.5 (RR-00022) and MP 1331 (RR-00025). Fifty of the 62 soil samples collected had a coarse soil fraction that was analyzed using SOP SRC-LIBBY-01 (PLM using gravimetric evaluation [PLM-Grav]). All coarse soil fractions were non-detect for LA, OA, and CH.

ABS Air Sample Collection Procedures, Analytical Methods, and Results

ABS air samples were collected using the approach specified in the EPA Environmental Response Team (ERT) standard operating procedure (SOP) #2084, *Activity-Based Air Sampling for Asbestos*, with project-specific modifications. Because the ABS program did not allow water to be used, in order to best represent potential trespasser exposure, no water trucks were used to wet the track bed down prior to air sampling.

Deviations from the SAP occurred during this study due to manpower availability and field conditions. Deviations included changes in sample collection durations, adjustment of air pump flows, trains passing

through the maintenance area during ABS, and rainfall occurring on one ABS sampling day. For example, the SAP called for a maximum sample collection duration of 4 hours for workers; however, the duration of the sampling event for workers was variable depending on the rail maintenance tasks required. Pumps were placed on workers at the beginning of a shift and retrieved at the end of the shift frequently resulting in sample collection duration greater than 4 hours. In some cases, the increased sample collection duration resulted in filter overloading. To minimize the potential for filter overloading, in some cases, the air sample flow rate was decreased from 2.8 liters per minute (L/min) to 1.0 L/min. Deviations from the SAP were noted in the *Activity Based Summary Report for Worker Receptors* (EMR Inc., 2010b) and the *Activity Based Summary Report for Public Receptors* (EMR Inc., 2010a).

All air samples were analyzed for asbestos by TEM utilizing International Organization for Standardization (ISO) Method 10312:1995(E) (ISO 1995) counting and recording rules. The target analytical sensitivity (TAS) calculated in the SAP (ENSR/AECOM 2008) was determined based on a BNSF worker exposure scenario and utilizing the inhalation unit risk (IUR) for asbestos presented in the *Asbestos Framework* document (EPA 2008). The TAS specified in the SAP was 0.001 cc^{-1} . However, more than half of all air samples collected during this ABS study did not achieve the TAS. All air samples collected in this ABS study were non-detect.

Supplemental TEM Analysis

Because all air samples collected in this ABS study were non-detect, it is important to ensure that the achieved analytical sensitivity is adequate to support reliable risk management decision-making, especially with respect to the LA-specific toxicity values that have been recently proposed by EPA (EPA 2011). For this reason, a supplemental analysis was performed by EPA for select ABS air samples in order to support risk management decision making with respect to the LA-specific toxicity values. During this supplemental analysis effort, the originally collected ABS air filters were taken from archive and additional grid openings were examined by TEM to improve the achieved analytical sensitivity. Supplemental TEM analysis was performed for all of the worker ABS samples and 8 of the 14 pedestrian ABS samples. Asbestos was not detected in any of the samples selected for supplemental analysis and the achieved analytical sensitivity for these analyses was adequate to support risk characterization using the LA-specific toxicity values. The TAS derived for the supplemental analysis was based on a draft LA-specific reference concentration (RfC) of 0.00006 LA PCM structures per cubic centimeter (s/cc). In the case that the final RfC is lower than 0.00006 s/cc uncertainty would exist with the adequacy of the achieved analytical sensitivity for these supplemental analyses to support risk management decision-making.

Data Adequacy Conclusions

Data collected during this event appear to adequately characterize areas within OU6 in the predominant downgradient wind direction (north, northwest) from the mine site. Samples were collected from the majority of areas within OU6. However, areas closer than 7.5 miles from Libby were not evaluated. The similarity of conditions within OU6 closer to Libby versus miles away cannot be determined based on this evaluation. Granted that track maintenance activities would be similar throughout OU6 yet exposures could be different if site conditions change in the vicinity of Libby.

SEPTEMBER 2008, STEEL GANG AIR MONITORING, OSHA EXPOSURE SAMPLING

In September 2008, Occupational Safety and Health Administration (OSHA) exposure sampling for the BNSF Steel Gangs performing rail and other track component replacement was conducted along select portions of the BNSF ROW located between Kootenai River Subdivision MP 1312 and MP 1341 (EMR Inc. 2009a). The initial work area was MP 1312, which is east of Libby and approximately 2 ½ miles east of the former Kootenai Bluffs vermiculite ore loading facility. The purpose of the OSHA exposure sampling was to gather sufficient, representative data to allow BNSF Industrial Hygiene personnel to ensure that BNSF personnel were not being exposed to asbestos concentrations in excess of the Permissible Exposure Level (PEL) and that the personal protective equipment (PPE) and work practices prescribed by BNSF are sufficient for worker protection.

Seven days of OSHA exposure sampling were conducted during BNSF Steel Gang work in the area. All of BNSF's work using Steel Gangs was related to track replacement and/or repair of mainline or siding tracks along the ROW east and west of Libby. To be consistent with the ABS program no water trucks were used to wet the track bed down prior to air sampling.

A total of 56 personal air samples were collected. Samples were analyzed by PCM in accordance with NIOSH Method 7400. Reported air concentrations in these samples ranged from 0.003 fibers per cubic centimeter (f/cc) to 0.014 f/cc, below the OSHA PEL of 0.1 f/cc.

A total of 24 personal air samples were submitted for TEM analysis using ISO Method 10312:1995(E) (ISO 1995) counting and recording rules. Filters that were visibly overloaded with particulates and samples with reported PCM air concentrations greater than the air clearance level (0.01 f/cc) or the OSHA PEL (0.1 f/cc) were preferentially selected for TEM analysis. All of the air samples were non-detect for asbestos; achieved sensitivities ranged from 0.00206 cc⁻¹ to 0.00236 cc⁻¹. Three of the overloaded personal air filters were prepared indirectly; achieved sensitivities for these samples ranged from 0.00359 cc⁻¹ to 0.00589 cc⁻¹.

MAY 2009, SUPER SURFACING GANG, BNSF PERSONNEL OSHA EXPOSURE SAMPLING

Super Surfacing Gang maintenance work and associated sampling occurred along select portions of the BNSF ROW located between BNSF MP 1307 and MP 1341 (EMR Inc. 2009b). The primary purpose of this sampling event was to gather sufficient and representative air quality data to determine whether asbestos was released to air during track maintenance activities. Sampling commenced on May 19 and continued through May 22, 2009. The gang consisted of two machines and crew; 1) a production tamper; and 2) profiler/broom machine. Both machines have a crew of three people that consist of two operators and one profiler.

A total of six personal samples were collected each day, resulting in a total of 24 personal air samples. Due to filter overloading, PCM analysis was not performed, and all samples submitted for TEM analysis using AHERA counting and recording rules. Due to variable levels of filter loading, 5 samples were prepared directly, 3 samples were prepared indirectly without ashing, and 16 samples were prepared

indirectly with ashing. Due to the need for indirect preparation, not all samples met the TAS (0.005 cc^{-1}); achieved sensitivities ranged from 0.0042 cc^{-1} to 0.2 cc^{-1} . All samples were non-detect for asbestos.

Four stationary air samples were collected from the property boundary and analyzed for asbestos by TEM using AHERA counting and recording rules. All four samples were prepared directly, met the TAS (0.005 cc^{-1}), and were non-detect for asbestos.

JUNE 2009, SPOIL PILES-UNDERCUTTER SPOILS SAMPLING

Undercutting involves removal of ballast and debris from the ballast structure, sorting ballast from debris (spoils), placement of ballast back beneath the track structure and discharge of the removed spoils. Typically the spoils (small ballast, fine sediments) are discharged via conveyor to the side of the ROW.

Undercutting was completed in June 2009 at several locations near Kootenai Falls between BNSF Kootenai River Subdivision MP 1329.8 and MP 1333.02 as part of normal track maintenance (EMR Inc. 2009c). A total of four spoils piles were located between MP 1329.8 and MP 1333.02 and varied in size from 3,000 cubic feet (ft^3) (30 feet long by 20 feet wide x 5 feet high) to $24,000 \text{ ft}^3$ (1,500 feet long x 4 feet wide x 4 feet high). In general, the spoils piles were composed of variable size ballast cobbles and soil. However, very fine mica flakes were observed at two sample locations (MP 1331.8 and 1332.89).

A total of six spoils samples were collected from the four spoils piles. Each sample was collected as a composite of six spoils aliquots. Each aliquot was collected from approximately 6 inches below the pile surface and homogenized. All six soil samples were prepared for analysis by the Libby-specific PLM methods. Fine, ground and coarse fractions were analyzed using PLM-VE and PLM-Grav methods, respectively. No asbestos was detected in any of these samples.

It is assumed that these are the only spoil piles within OU6; however, this assumption is not clear in the sampling report (EMR Inc. 2009c). If these are the only spoil piles within OU6, they appear to be adequately characterized provided that these spoil piles are not redistributed so that deeper spoils are exposed.

MARCH-APRIL 2010, RAIL GANGS, KOOTENAI RIVER SUBDIVISION

Sampling was conducted from March 29 through April 8, 2010, for two BNSF Rail Gangs performing rail and other track component replacement along select portions of the BNSF right-of-way located between MP 1308.5 and MP 1344 (EMR Inc. 2010c). The primary purpose of this sampling event was to gather sufficient and representative air quality data to determine whether asbestos was released to air by track maintenance activities. A secondary function of this sampling event was to collect air quality data from near the BNSF property boundary (stationary air samples). In the event that maintenance activities did create a fiber release, this data would be used to determine whether the release could impact off-site receptors.

Five personal air samples were collected each day from a mixture of machine operators and laborers in an attempt to collect a representative cross section of personnel working during each sampling day in each work area. For most work days, air samples were collected from two different areas. Two stationary air samples were collected each sampling day from within each maintenance area to assess ambient air quality during the entire work cycle. A total of 65 personal air samples were collected and 60 were analyzed for asbestos by TEM using AHERA counting and recording rules. Of the 60 samples, ten samples were indirectly prepared and the remaining samples were prepared directly. With the exception of samples that were prepared indirectly, the TAS (0.005 cc^{-1}) was met. All samples were non-detect for asbestos.

A total of 26 stationary air samples were collected and analyzed asbestos by TEM using AHERA counting and recording rules. All samples met the TAS (0.005 cc^{-1}); all samples were non-detect for asbestos.

Locations evaluated in this sampling program spanned the length of OU6 and are representative of conditions at OU6. Sampled areas included locations closer to Libby than had been sampled in previous investigations.

MAY 2010, STIMSON WYE TRACK REMOVAL

In May 2010, sampling was conducted during demolition of track from east end of Libby Yard toward Stimson Lumber Yard, known as Stimson Wye (EMR Inc. 2010d). The primary purpose of this sampling event was to gather sufficient and representative air quality data to determine whether asbestos was released to air by track maintenance activities. A secondary function of this sampling event was to collect air quality data from near the BNSF property boundary.

Work occurred along a two track industrial spur within the BNSF right-of-way located near BNSF MP 1319.41 and extended across two parallel track spurs to the east end terminus of 3rd Street. Work consisted of the disassembly and removal of approximately 2,115 feet of track and final grading. Steel components were removed for recycling and the ties were stockpiled on-site for later disposal. The rails and other steel components were dismantled and removed. Following removal of the steel components, the BNSF equipment operator removed, transported, and stockpiled the wooden ties. A water truck was used to suppress dust.

A total of three personal air samples and ten stationary air samples were collected. Samples were analyzed by TEM using AHERA counting and recording rules. With the exception of two samples which required indirect preparation (one personal air sample and one stationary air sample), all samples collected achieved the TAS of 0.005 cc^{-1} . All of the personal air samples and the stationary air samples were non-detect for asbestos.

During this sampling event, visible vermiculite was observed west of the switch at MP 1319.41 in an area about 25 feet long and 8 feet wide on the removed track.

RESULTS OVERVIEW

The following table provides a summary of the available data for OU6.

Summary of Available Data for OU6				
Date of Investigation	Investigation/ Action/Activity	Number of Samples	Location	Results
2001, April	Soil sampling	11	Libby Railyard and mileposts east of railyard	Asbestos detected in 3 samples within the railyard. All 8 milepost samples were non-detect.
2001, November	Soil sampling in railyard	N/A	Libby Railyard	Asbestos detected in 3 composite and 5 discrete grab soil samples (<1%).
2002, October	Soil sampling in railyard for non-asbestos parameters for landfill disposal	N/A	Libby Railyard	Concentrations within acceptable landfill disposal limits.
2002, November	Soil sampling in railyard	N/A	Libby Railyard	Detections in 8 composite samples (<1%) and 31 discrete grab soil samples.
2003, August	Soil sampling in railyard	N/A	Libby Railyard	Asbestos detected in 3 composite samples (2%) and 12 discrete grab soil samples (<1% to 3%)
2004, July	Soil sampling in railyard	N/A	Libby Railyard	Asbestos detected in 8 samples (<1%) - splits were either ND or trace.
2004, September	Soil sampling in railyard	N/A	Libby Railyard	Asbestos detected in 2 composite samples and 6 discrete grab soil samples (<1%).
2004, September & October	Clearance samples for Removal Action soil excavation and capping	N/A	Libby Railyard	Detections (<1%) in 6 composite samples and 8 discrete grab soil samples.
2004, October	Disposal characterization of railroad ties removed during Removal Action	N/A	Libby Railyard	No asbestos detected.
2004, October	Disposal characterization of railroad ties removed during Removal Action	N/A	Libby Railyard	No asbestos detected.
2005	Clearance samples for additional area of soil contamination discovered after 2004 Removal Action.	N/A	Libby Railyard	No asbestos detected.
2008, July	Rail Crossing Air	13 Personal air	Jay Effar Road	No asbestos detected.

	Monitoring	samples	and Cedar Creek	
2008, September	OSHA Exposure Sampling– Steel Gang	56 Personal air samples	From MP 1312.8 to MP 1341	Asbestos air concentrations were less than PEL. No LA was detected in samples analyzed by TEM using ISO 13012
2008, September	ABS Sampling	14 Pedestrian Trespassers; 7 On-looker trespassers; 22- stationary air samples; 62 soil samples ¹	From 7 to 20 miles from Libby	No asbestos (LA, OA, or CH) detected.
2008, September	ABS Sampling for Worker Receptors	12 Personal air samples	From 7 to 20 miles from Libby	No asbestos detected (LA, OA, or CH). All but 3 samples met target analytical sensitivity.
2009, May	OSHA Exposure Sampling Super Surfacing Gang	24 Personal and 4 Stationary Air Sampling	From MP 1307 to MP 1341	No asbestos detected by TEM AHERA.
2009, June	Undercutter Spoils Sampling	6 composite soil samples	From MP 1329.8 to MP 1333.02	No asbestos detected by PLM-VE or PLM-Grav.
2010, March & April	Asbestos Exposure Sampling for Steel Gang	60 air personal samples and 26 stationary air samples	MP 1308.5 and MP 1344	No asbestos detected by TEM AHERA.
2010, May	Stimson Wye Removal	3 personal and 10 stationary air samples	Stimson Wye	No asbestos detected by TEM AHERA.

¹ Discrete grab soil samples collected from 40 to 320 feet dependent on work area and available exposed soil from both sides of track

AHERA- Asbestos Hazard Emergency Response Act

LA -Libby amphibole, OA- other amphibole , and CH-chrysotile asbestos

ISO- International Organization for Standardization

N/A – Not available

MP - Mile Post

ND – non detect

PEL - Permissible Exposure Limit

PLM-Grav – polarized light microscopy using gravimetric evaluation

PLM-VE - polarized light microscopy using visual area estimation

TEM - transmission electron microscopy

SUMMARY

A number of railroad track maintenance events have been sampled since 2008 that are representative of both periodic and routine maintenance conducted by BNSF within OU6. Field investigations used sample collection procedures and analytical methods that are equivalent to what has been done for all other work at the Libby Asbestos Superfund Site. No asbestos structures have been detected in any of the seven air sampling events conducted since 2008. Soil sampling conducted during ABS resulted in only localized, trace concentrations of asbestos. Additionally, sampling of spoils generated by track structure cleaning, did not indicate the presence of asbestos.

Based on the data presented in the various reports, routine maintenance activities within OU6 do not appear to pose a significant exposure to BNSF maintenance workers or the general public. The available data suggest that additional investigation is not warranted at this time. If future activities were to occur that were other than routine maintenance activities (e.g., removal of spoil piles or major track reconstruction), additional evaluation and data collection may be warranted.

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